

sub D5

1. (Twice Amended) A contact structure for an integrated circuit comprising:

- a lower bulk insulator layer situated above a semiconductor substrate;
- a conductor layer situated above the lower bulk insulator layer;
- a sleeve insulator layer in contact with the conductor layer, the sleeve insulator layer comprising:
 - a first terminus adjacent to the conductor layer; and
 - a second terminus opposite the first terminus, the second terminus above the semiconductor substrate and within the lower bulk insulator layer; and
 - a conductive contact extending from and beyond the sleeve insulator layer to terminate at a contact on said semiconductor substrate, said conductive contact being electrically insulated from the conductor layer by the sleeve insulator layer.

B2

6. (Once Amended) The contact structure as defined in Claim 4, wherein the electrically insulating layer upon the conductor layer is an upper bulk insulator layer having a sidewall, wherein the sidewall of the upper bulk insulator layer is in contact with the sleeve insulator layer.

B3

8. (Once Amended) The contact structure as defined in Claim 1, wherein the conductive contact is at least partially circumscribed by and is in contact with said sleeve insulator layer.

B4

11. (Once Amended) The contact structure as defined in Claim 1, wherein the conductive contact has an end on said semiconductor substrate that is composed of a refractory metal silicide material.

cont.
B4

12. (Once Amended) The contact structure as defined in Claim 1, wherein said sleeve insulator layer comprises a material selected from the group consisting of Ta₂O₅ and Si₃N₄.

sub 06

13. (Twice Amended) A contact structure for an integrated circuit comprising:

- a lower bulk insulator layer situated above a semiconductor substrate;
- a conductor layer situated above the lower bulk insulator layer;
- an upper bulk insulator layer upon the conductor layer;
- a sleeve insulator layer in contact with the conductor layer, the sleeve insulator layer comprising:
 - a first terminus adjacent to the conductor layer; and
 - a second terminus opposite the first terminus, the second terminus above the semiconductor substrate and within the lower bulk insulator layer; and
 - a conductive plug extending from and beyond the sleeve insulator layer to terminate at a contact on said semiconductor substrate, said conductive plug being electrically insulated from the conductor layer by the sleeve insulator layer.

sub 07

15. (Twice Amended) A contact structure for an integrated circuit comprising:

- a lower bulk insulator layer situated above a semiconductor substrate, the lower bulk insulator layer having a sidewall;
- a dielectric layer situated above the lower bulk insulator layer;
- a conductor layer situated above the lower bulk insulator layer and above the dielectric layer, the conductor layer having a sidewall;
- an electrically insulating layer situated upon the conductor layer;

cont.
B6

~~a sleeve insulator layer in contact with the lower bulk insulator layer sidewall and the conductor layer sidewall, the sleeve insulator layer comprising:~~

~~a first terminus adjacent to the conductor layer; and~~

~~a second terminus opposite the first terminus, the second terminus above the semiconductor substrate and within the lower bulk insulator layer; and~~

~~a conductive plug extending from and beyond the sleeve insulator layer to terminate at a contact on said semiconductor substrate, said conductive plug being electrically insulated from the conductor layer by the sleeve insulator layer.~~

17. (Once Amended) The contact structure as defined in Claim 15, wherein the electrically insulating layer upon the conductor layer is an upper bulk insulator layer having a sidewall, wherein the sidewall of the upper bulk insulator layer is in contact with the sleeve insulator layer.

18. (Once Amended) The contact structure as defined in Claim 15, wherein:

B7

said conductor layer is a cell plate of a capacitor and extends from said sleeve insulator layer to make contact with a capacitor dielectric layer of the capacitor, the dielectric layer being situated upon a storage node layer of the capacitor, the storage node layer being situated upon the semiconductor substrate;

said capacitor dielectric layer extends to make contact with the sleeve insulator layer;

said contact on said semiconductor substrate is an active area for a transistor having a gate in electrical communication with said conductive plug; and

said transistor is in electrical communication with the storage node layer of the capacitor.

19. (Twice Amended) A contact structure for an integrated circuit comprising:

- a semiconductor substrate having an active region therein;
- a capacitor storage node in contact with the active region;
- a capacitor dielectric upon the capacitor storage node;
- a capacitor cell plate upon the capacitor dielectric;
- an electrically conductive plug in contact with the active region and the storage node;

and

a sleeve insulator layer insulating the capacitor cell plate from the electrically conductive plug, the sleeve insulator layer in contact with the capacitor storage node, the capacitor dielectric, and the capacitor cell plate, the sleeve insulator layer comprising:

- a first terminus adjacent to the capacitor cell plate; and
- a second terminus opposite the first terminus, the second terminus above the semiconductor substrate and in contact with the capacitor storage node.

20. (Once Amended) The contact structure as defined in Claim 19, further comprising:

- a first transistor situated upon the semiconductor substrate; and
- a second transistor situated upon the semiconductor substrate, wherein:
 - a first portion of the electrically conductive plug is situated between the first and second transistors and between the semiconductor substrate and the sleeve insulator layer; and
 - the capacitor storage node is in contact with an insulated spacer on each of the first and second transistors.

cont.
B9

21. (Once Amended) The contact structure as defined in Claim 20, wherein the first portion of the electrically conductive plug is enclosed within the sleeve insulator layer.

sub Da

22. (Twice Amended) A contact structure for an integrated circuit comprising:

- a lower bulk insulator layer situated above a semiconductor substrate;
- a dielectric layer above the lower bulk insulator layer;
- a conductor layer situated above the dielectric layer;
- an electrically insulating layer formed conformably upon the conductor layer;
- a sleeve insulator layer comprising a material selected from the group consisting of Ta_2O_5 and Si_3N_4 , the sleeve insulator layer comprising:
 - a first terminus adjacent to and in contact with the conductor layer; and
 - a second terminus opposite the first terminus, the second terminus above the semiconductor substrate and within the lower bulk insulator layer; and
 - a conductive contact terminating at a refractory metal silicide material contact on said semiconductor substrate and being electrically insulated from the conductor layer by the sleeve insulator layer.

B10

B11

23. (Once Amended) The contact structure as defined in Claim 22, wherein the conductive contact is at least partially circumscribed by and is in contact with said sleeve insulator layer.